

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently amended) A sequence display method, comprising:
a first step of accepting, by a sequence display device,
a plurality of similar nucleotide sequences or amino acid sequences and
information relating to mutations or similarities between ~~a~~ the plurality of similar
nucleotide sequences or amino acid sequences; ~~and~~
a second step of adding visual characteristics to the plurality of similar nucleotide
sequences or amino acid sequences according to said information relating to said mutations or
similarities ~~and displaying said plurality of similar nucleotide sequences or amino acid~~
~~sequences; and~~
a third step of adding links between said plurality of similar nucleotide sequences or
amino acid sequences and relevant information and displaying the plurality of similar nucleotide
sequences or amino acid sequences, the visual characteristics, and the links.
2. (Original) A sequence display method according to claim 1, wherein said visual
characteristics are added to regions of mutation and/or regions of similarity in said plurality of
similar nucleotide sequences or amino acid sequences.

3. (Original) A sequence display method according to claim 1, wherein said visual characteristics are added in accordance with the degree of said mutation and/or similarity.

4. (Withdrawn) A sequence display method according to claim 2, wherein said visual characteristics are added in accordance with the frequency of mutation in said regions of mutation.

5. (Withdrawn) A sequence display method according to claim 2, wherein said visual characteristics are added based on amino acid information that includes the names and properties of amino acids that correspond to codons in said plurality of similar nucleotide sequences.

6. (Original) A sequence display method according to claim 1, wherein said visual characteristics are displayed using display color.

7. (Original) A sequence display method according to claim 1, wherein said visual characteristics are displayed using variation of display color.

8. (Withdrawn) A sequence display method according to claim 1, wherein said visual characteristics are displayed using varieties of characters.

9. (Original) A sequence display method according to claim 1, wherein, in said second step, corresponding nucleotides or amino acids in each sequence are displayed in alignment.

10. (Canceled).

11. (Currently amended) A sequence display device, comprising:

a first means for accepting

a plurality of similar nucleotide sequences or amino acid sequences and

information relating to mutation and/or similarity in-a the plurality of similar nucleotide sequences or amino acid sequences; ~~and~~

a second means for adding links between said plurality of similar nucleotide sequences or amino acid sequences and relevant information; and

a ~~second~~ third means for adding visual characteristics to said plurality of similar nucleotide sequences or amino acid sequences in accordance with said information relating to mutation and/or similarity and displaying said plurality of similar nucleotide sequences or amino acid sequences, the visual characteristics, and the links.

12. (currently amended) A sequence display device according to claim 11, wherein said ~~second~~ third means adds said visual characteristics to regions of mutation and/or regions of similarity in said plurality of similar nucleotide sequences or amino acid sequences.

13. (currently amended) A sequence display device according to claim 11, wherein said ~~second~~ third means adds said visual characteristics in accordance with the degree of said mutation and/or said similarity.

14. (Withdrawn) A sequence display device according to claim 12, wherein said second means adds said visual characteristics in accordance with the frequency of mutation in said regions of mutation.

15. (Withdrawn) A sequence display device according to claim 12, wherein said second means adds said visual characteristics based on amino acid information that includes the names and properties of amino acids that correspond to codons in said plurality of similar nucleotide sequences.

16. (currently amended) A sequence display device according to claim 11, wherein said ~~second~~ third means represents said visual characteristics using display color.

17. (currently amended) A sequence display device according to claim 11, wherein said ~~second~~ third means represents said visual characteristics using variation of display color.

18. (Withdrawn) A sequence display device according to claim 11, wherein said second means represents said visual characteristics using varieties of characters.

19. (currently amended) A sequence display device according to claim 11, wherein said ~~second~~third means displays with corresponding nucleotides or amino acids in each sequence in alignment.

20. (Canceled).

21. (currently amended) A sequence display program product ~~for causing a computer to execute each of~~ comprising a computer readable medium having instructions, said instructions facilitating a computer to perform the steps described in claim 1.

22. (Currently amended) A sequence display program product ~~for causing a computer to execute each of~~ comprising a computer readable medium having instructions, said instructions facilitating a computer to perform the steps described in claim 2.

23. (Currently amended) A sequence display program product ~~for causing a computer to execute each of~~ comprising a computer readable medium having instructions, said instructions facilitating a computer to perform the steps described in claim 3.

24. (Withdrawn) A sequence display program product ~~for causing a computer to execute each of~~ comprising a computer readable medium having instructions, said instructions facilitating a computer to perform the steps described in claim 4.

25. (Withdrawn) A sequence display program product for causing a computer to execute each of the steps described in claim 5.

26. (currently amended) A sequence display program product ~~for causing a computer to execute each of~~ comprising a computer readable medium having instructions, said instructions facilitating a computer to perform the steps described in claim 6.

27. (currently amended) A sequence display program product ~~for causing a computer to execute each of~~ comprising a computer readable medium having instructions, said instructions facilitating a computer to perform the steps described in claim 7.

28. (Withdrawn) A sequence display program product for causing a computer to execute each of the steps described in claim 8.

29. (currently amended) A sequence display program product ~~for causing a computer to execute each of~~ comprising a computer readable medium having instructions, said instructions facilitating a computer to perform the steps described in claim 9.

30. (Canceled).

31. (Canceled).

32. (Canceled).

33. (Canceled).

34. (Withdrawn) A recording medium on which is recorded a sequence display program for causing a computer to execute each of the steps described in claim 4 and that can be read by a computer.

35. (Withdrawn) A recording medium on which is recorded a sequence display program for causing a computer to execute each of the steps described in claim 5 and that can be read by a computer.

36. (Canceled).

37. (Canceled).

38. (Withdrawn) A recording medium on which is recorded a sequence display program for causing a computer to execute each of the steps described in claim 8 and that can be read by a computer.

39. (Canceled).

40. (Canceled).

41. (Currently amended) A homology search method, comprising:

a fourth step of analyzing ~~a query to a sequence database~~ a nucleotide sequence or amino acid sequence that has been submitted by a user to a sequence database;

a fifth step of generating search conditions that are appropriate for ~~said sequence database~~ the submitted nucleotide sequence or amino acid sequence, based on the analysis results of said fourth step; and

a sixth step of searching said sequence database for other nucleotide sequences or amino acid sequences in accordance with the search conditions, so as to provide a plurality of similar nucleotide sequences or amino acid sequences;

~~a sixth-seventh step of analyzing the search results of said fifth step and generating information relating to mutations and/or similarities in-a~~ the plurality of similar nucleotide sequences or amino acid sequences; and

~~a seventh step of using information that has been generated in said sixth step and a-an eighth step of performing the first, second, and third steps in the sequence display method described in claim 1 to display search results of said fifth step.~~

42. (Currently amended) A homology search method, comprising:

a fourth step of analyzing ~~a query to a sequence database~~ nucleotide sequence or amino acid sequence that has been submitted by a user to a sequence database;

a fifth step of generating search conditions that are appropriate for ~~said sequence database~~
the submitted nucleotide sequence or amino acid sequence, based on the analysis results of said
fourth step; and

a sixth step of searching said sequence database for other nucleotide sequences or amino
acid sequences in accordance with the search conditions, so as to provide a plurality of similar
nucleotide sequences or amino acid sequences;

a ~~sixth-seventh~~ step of ~~analyzing the search results of said fifth step and~~ generating
information relating to mutations and/or similarities in a the plurality of similar nucleotide
sequences or amino acid sequences; and

~~a seventh step of using information that has been generated in said sixth step and a~~ an
eighth step of performing the first, second, and third steps in the sequence display method
described in claim 2 ~~to display search results of said fifth step.~~

43. (Currently amended) A homology search method, comprising:

a fourth step of analyzing a ~~query to a sequence database~~ nucleotide sequence or amino
acid sequence that has been submitted by a user to a sequence database;

a fifth step of generating search conditions that are appropriate for ~~said sequence database~~
the submitted nucleotide sequence or amino acid sequence, based on the analysis results of said
fourth step; and

a sixth step of searching said sequence database for other nucleotide sequences or amino acid sequences in accordance with the search conditions, so as to provide a plurality of similar nucleotide sequences or amino acid sequences;

~~a sixth-seventh step of analyzing the search results of said fifth step and generating information relating to mutations and/or similarities in-a the plurality of similar nucleotide sequences or amino acid sequences; and~~

~~a seventh step of using information that has been generated in said sixth step and a-an eighth step of performing the first, second, and third steps in the sequence display method described in claim 3 to display search results of said fifth step.~~

44. (Withdrawn) A homology search method, comprising:

a fourth step of analyzing a query to a sequence database that has been submitted by a user;

a fifth step of generating search conditions that are appropriate for said sequence database based on the analysis results of said fourth step and searching said sequence database;

a sixth step of analyzing the search results of said fifth step and generating information relating to mutations and/or similarities in a plurality of similar nucleotide sequences or amino acid sequences; and

a seventh step of using information that has been generated in said sixth step and a sequence display method described in claim 4 to display search results of said fifth step.

45. (Withdrawn) A homology search method, comprising:

a fourth step of analyzing a query to a sequence database that has been submitted by a user;

a fifth step of generating search conditions that are appropriate for said sequence database based on the analysis results of said fourth step and searching said sequence database;

a sixth step of analyzing the search results of said fifth step and generating information relating to mutations and/or similarities in a plurality of similar nucleotide sequences or amino acid sequences; and

a seventh step of using information that has been generated in said sixth step and a sequence display method described in claim 5 to display search results of said fifth step.

46. (Currently amended) A homology search method, comprising:

a fourth step of analyzing a ~~query to a sequence database~~ nucleotide sequence or amino acid sequence that has been submitted by a user to a sequence database;

a fifth step of generating search conditions that are appropriate for ~~said sequence database~~ the submitted nucleotide sequence or amino acid sequence, based on the analysis results of said fourth step; ~~and~~

a sixth step of searching said sequence database for other nucleotide sequences or amino acid sequences in accordance with the search conditions, so as to provide a plurality of similar nucleotide sequences or amino acid sequences;

~~a sixth-seventh step of analyzing the search results of said fifth step and generating~~
information relating to mutations and/or similarities in ~~a~~ the plurality of similar nucleotide
sequences or amino acid sequences; and

~~a seventh step of using information that has been generated in said sixth step and a~~ an
eighth step of performing the first, second, and third steps in the sequence display method
described in claim 6 ~~to display search results of said fifth step.~~

47. (Currently amended) A homology search method, comprising:

a fourth step of analyzing a ~~query to a sequence database~~ nucleotide sequence or amino
acid sequence that has been submitted by a user to a sequence database;

a fifth step of generating search conditions that are appropriate for ~~said sequence database~~
the submitted nucleotide sequence or amino acid sequence, based on the analysis results of said
fourth step; ~~and~~

a sixth step of searching said sequence database for other nucleotide sequences or amino
acid sequences in accordance with the search conditions, so as to provide a plurality of similar
nucleotide sequences or amino acid sequences;

~~a sixth-seventh step of analyzing the search results of said fifth step and generating~~
information relating to mutations and/or similarities in ~~a~~ the plurality of similar nucleotide
sequences or amino acid sequences; and

~~a seventh step of using information that has been generated in said sixth step and a~~
an eighth step of performing the first, second, and third steps in the sequence display method
described in claim 7 ~~to display search results of said fifth step.~~

48. (Withdrawn) A homology search method, comprising:

a fourth step of analyzing a query to a sequence database that has been submitted by a user;

a fifth step of generating search conditions that are appropriate for said sequence database based on the analysis results of said fourth step and searching said sequence database;

a sixth step of analyzing the search results of said fifth step and generating information relating to mutations and/or similarities in a plurality of similar nucleotide sequences or amino acid sequences; and

a seventh step of using information that has been generated in said sixth step and a sequence display method described in claim 8 to display search results of said fifth step.

49. (Currently amended) A homology search method, comprising:

a fourth step of analyzing a ~~query to a sequence database~~ nucleotide sequence or amino acid sequence that has been submitted by a user to a sequence database;

a fifth step of generating search conditions that are appropriate for ~~said sequence database~~ the submitted nucleotide sequence or amino acid sequence, based on the analysis results of said fourth step; and

a sixth step of searching said sequence database for other nucleotide sequences or amino acid sequences in accordance with the search conditions, so as to provide a plurality of similar nucleotide sequences or amino acid sequences;

~~a sixth-seventh step of analyzing the search results of said fifth step and generating information relating to mutations and/or similarities in-a~~ the plurality of similar nucleotide sequences or amino acid sequences; and

~~a seventh step of using information that has been generated in said sixth step and a-an eighth step of performing the first, second, and third steps in the sequence display method described in claim 9 to display search results of said fifth step.~~

50. (Canceled).

51. (Currently amended) A homology search device, comprising:

a fourth means for analyzing a ~~query to a sequence database~~ nucleotide sequence or amino acid sequence that has been submitted by a user to a sequence database;

a fifth means for generating search conditions that are appropriate for ~~said sequence database~~ the submitted nucleotide sequence or amino acid sequence, based on analysis results produced by said fourth means ~~and, wherein~~

said fifth means is also a means for searching said sequence database for other nucleotide sequences or amino acid sequences in accordance with the search conditions, so as to provide a plurality of similar nucleotide sequences or amino acid sequences;

a sixth means for ~~analyzing search results produced by said fifth means and~~ generating information relating to mutations and/or similarities in ~~a~~ the plurality of similar nucleotide sequences or amino acid sequences; and

~~a seventh means for using information that has been generated by said sixth means and a sequence display device according to claim 11 to display search results produced by said fifth means~~ the first, second, and third means recited in claim 11.

52. (Currently amended) A homology search device, comprising:

a fourth means for analyzing a ~~query to a sequence database~~ nucleotide sequence or amino acid sequence that has been submitted by a user to a sequence database;

a fifth means for generating search conditions that are appropriate for ~~said sequence database~~ the submitted nucleotide sequence or amino acid sequence, based on analysis results produced by said fourth means ~~and~~, wherein

said fifth means is also a means for searching said sequence database for other nucleotide sequences or amino acid sequences in accordance with the search conditions, so as to provide a plurality of similar nucleotide sequences or amino acid sequences;

a sixth means for ~~analyzing search results produced by said fifth means and~~ generating information relating to mutations and/or similarities in ~~a~~ the plurality of similar nucleotide sequences or amino acid sequences; and

~~a seventh means for using information that has been generated by said sixth means and a sequence display device according to claim 11 to display search results produced by said fifth means~~ the first, second, and third means recited in claim 12.

53. (Currently amended) A homology search device, comprising:

a fourth means for analyzing a ~~query to a sequence database~~ nucleotide sequence or amino acid sequence that has been submitted by a user to a sequence database;

a fifth means for generating search conditions that are appropriate for ~~said sequence database~~ the submitted nucleotide sequence or amino acid sequence, based on analysis results produced by said fourth means ~~and~~, wherein

said fifth means is also a means for searching said sequence database for other nucleotide sequences or amino acid sequences in accordance with the search conditions, so as to provide a plurality of similar nucleotide sequences or amino acid sequences;

a sixth means for ~~analyzing search results produced by said fifth means and~~ generating information relating to mutations and/or similarities in ~~a~~ the plurality of similar nucleotide sequences or amino acid sequences; and

~~a seventh means for using information that has been generated by said sixth means and a sequence display device according to claim 11 to display search results produced by said fifth means~~ the first, second, and third means recited in claim 13.

54. (Withdrawn) A homology search device, comprising:

a fourth means for analyzing a query to a sequence database that has been submitted by a user;

a fifth means for generating search conditions that are appropriate for said sequence database based on analysis results produced by said fourth means and searching said sequence database;

a sixth means for analyzing search results produced by said fifth means and generating information relating to mutations and/or similarities in a plurality of similar nucleotide sequences or amino acid sequences; and

a seventh means for using information that has been generated by said sixth means and a sequence display device according to claim 14 to display search results produced by said fifth means.

55. (Withdrawn) A homology search device, comprising:

a fourth means for analyzing a query to a sequence database that has been submitted by a user;

a fifth means for generating search conditions that are appropriate for said sequence database based on analysis results produced by said fourth means and searching said sequence database;

a sixth means for analyzing search results produced by said fifth means and generating information relating to mutations and/or similarities in a plurality of similar nucleotide sequences or amino acid sequences; and

a seventh means for using information that has been generated by said sixth means and a sequence display device according to claim 15 to display search results produced by said fifth means.

56. (Currently amended) A homology search device, comprising:

a fourth means for analyzing a ~~query to a sequence database~~ nucleotide sequence or amino acid sequence that has been submitted by a user to a sequence database;

a fifth means for generating search conditions that are appropriate for ~~said sequence database~~ the submitted nucleotide sequence or amino acid sequence, based on analysis results produced by said fourth means ~~and, wherein~~

said fifth means is also a means for searching said sequence database for other nucleotide sequences or amino acid sequences in accordance with the search conditions, so as to provide a plurality of similar nucleotide sequences or amino acid sequences;

a sixth means for ~~analyzing search results produced by said fifth means and~~ generating information relating to mutations and/or similarities in ~~a~~ the plurality of similar nucleotide sequences or amino acid sequences; and

~~a seventh means for using information that has been generated by said sixth means and a sequence display device according to claim 11 to display search results produced by said fifth means~~ the first, second, and third means recited in claim 16.

57. (Currently amended) A homology search device, comprising:

a fourth means for analyzing a ~~query to a sequence database~~ nucleotide sequence or amino acid sequence that has been submitted by a user to a sequence database;

a fifth means for generating search conditions that are appropriate for ~~said sequence database~~ the submitted nucleotide sequence or amino acid sequence, based on analysis results produced by said fourth means ~~and~~, wherein

said fifth means is also a means for searching said sequence database for other nucleotide sequences or amino acid sequences in accordance with the search conditions, so as to provide a plurality of similar nucleotide sequences or amino acid sequences;

a sixth means for ~~analyzing search results produced by said fifth means and~~ generating information relating to mutations and/or similarities in ~~a~~ the plurality of similar nucleotide sequences or amino acid sequences; and

~~a seventh means for using information that has been generated by said sixth means and a sequence display device according to claim 11 to display search results produced by said fifth means~~ the first, second, and third means recited in claim 17.

58. (Withdrawn) A homology search device, comprising:

a fourth means for analyzing a query to a sequence database that has been submitted by a user;

a fifth means for generating search conditions that are appropriate for said sequence database based on analysis results produced by said fourth means and searching said sequence database;

a sixth means for analyzing search results produced by said fifth means and generating information relating to mutations and/or similarities in a plurality of similar nucleotide sequences or amino acid sequences; and

a seventh means for using information that has been generated by said sixth means and a sequence display device according to claim 18 to display search results produced by said fifth means.

59. (Currently amended) A homology search device, comprising:

a fourth means for analyzing a ~~query to a sequence database~~ nucleotide sequence or amino acid sequence that has been submitted by a user to a sequence database;

a fifth means for generating search conditions that are appropriate for ~~said sequence database~~ the submitted nucleotide sequence or amino acid sequence, based on analysis results produced by said fourth means ~~and, wherein~~

said fifth means is also a means for searching said sequence database for other nucleotide sequences or amino acid sequences in accordance with the search conditions, so as to provide a plurality of similar nucleotide sequences or amino acid sequences;

a sixth means for ~~analyzing search results produced by said fifth means and~~ generating information relating to mutations and/or similarities in ~~a~~ the plurality of similar nucleotide sequences or amino acid sequences; and

~~a seventh means for using information that has been generated by said sixth means and a sequence display device according to claim 11 to display search results produced by said fifth means~~ the first, second, and third means recited in claim 19.

60. (Canceled).

61. (Currently amended) A homology search device according to claim 51, further comprising ~~an eighth~~ a means for controlling the operation of the first, second, third, fourth means, the fifth means, and the sixth means, ~~and the seventh means.~~

62. (Currently amended) A homology search program product ~~for causing a computer to execute each of~~ comprising a computer readable medium having instructions, said instructions facilitating a computer to perform the steps described in claim 41.

63. (Canceled).